

S/N Unknown

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Paul A. Farrar	Examiner:	Unknown
Serial No.:	Unknown	Group Art Unit:	Unknown
Filed:	Herewith	Docket:	303.572US2
Title:	SELECTIVE DEPOSITION OF SOLDER BALL CONTACTS		

INFORMATION DISCLOSURE STATEMENT

MS Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement.

Pursuant to 37 C.F.R. §1.98(d), copies of the listed documents are not provided as these references were previously cited by or submitted to the U.S. Patent Office in connection with Applicant's prior U.S. application, Serial No. 09/253611, filed on February 19, 1999, which is relied upon for an earlier filing date under 35 U.S.C. §120.

The Examiner is invited to contact the Applicant's Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

PAUL A. FARRAR

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6969

Date

1/4/04

By



Viet V. Tong
Reg. No. 45,416

"Express Mail" mailing label number: EV299685834 US

Date of Deposit: January 14, 2004

This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to The Commissioner for Patents, Mail Stop Patent Application, P.O.Box 1450, Alexandria, VA 22313-1450.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	Unknown
	Filing Date	Even Date Herewith
	First Named Inventor	Farrar, Paul
	Group Art Unit	Unknown
	Examiner Name	Unknown
Sheet 1 of 2	Attorney Docket No: 303.572US2	

US PATENT DOCUMENTS						
Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-3,959,047	05/25/1976	Alberts, G. S., et al.	156	8	09/30/1974
	US-4,273,859	06/16/1981	Mones, A., et al.	430	315	12/31/1979
	US-4,650,548	03/17/1987	Strube, , et al.	204	15	11/04/1985
	US-4,661,375	04/28/1987	Thomas, Donald A.	427	89	03/07/1986
	US-4,789,648	12/06/1988	Chow, M., et al.	437	225	10/28/1985
	US-4,790,912	12/13/1988	Holtzman, , et al.	204	15	11/14/1986
	US-4,982,267	01/01/1991	Mones, Arthur H., et al.	357	71	05/08/1987
	US-5,240,878	08/31/1993	Fitzsimmons, J., et al.	437	187	04/26/1991
	US-5,457,345	10/10/1995	Cook, H. C., et al.	257	766	01/14/1994
	US-5,461,257	10/24/1995	Hundt, M. J.	257	707	03/31/1994
	US-5,642,261	06/24/1997	Bond, R. H., et al.	361	704	06/30/1994
	US-5,693,572	12/02/1997	Bond, R. H., et al.	437	209	01/18/1996
	US-5,736,789	04/07/1998	Moscicki,	257	774	07/25/1995
	US-5,885,891	03/23/1999	Miyata, Masahiro , et al.	438	612	07/16/1997
	US-5,973,340	10/26/1999	Mohsen, Amr M.	257	209	07/17/1997

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		ANONYMOUS, "Combination Process for Final Metal Lines and Metal Terminals", Kenneth Mason Publications Ltd, Research Disclosure No. 342, England,(Oct. 1992),1 page	
		ANONYMOUS, "Process for High Density of Chip Terminals on Large Wafers", Kenneth Mason Publications Ltd, Research Disclosure No. 02, England,(Feb. 1993),1 page	
		ASM INTERNATIONAL, "Packaging", ASM International Electrotronic Materials Handbook Vol. 1,301 and 440p	
		BOHR, M., "Interconnect Scaling - HTe real Limiter to High Performance ULSI", IEEE, (1995),pp. 241-244	
		DAVIS, J., et al., "A Priori Writing Estimation and Optimal Multilevel Wiring Networks for Portable ULSI Systems", <u>Electronic Components and Technology Conference</u> , (1996),pp. 1002-1008	

EXAMINER

DATE CONSIDERED

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	Complete if Known	
	Application Number	Unknown
	Filing Date	Even Date Herewith
	First Named Inventor	Farrar, Paul
	Group Art Unit	Unknown
	Examiner Name	Unknown
Sheet 2 of 2	Attorney Docket No: 303.572US2	

		GWENNAP, L. , "IC Makers Confront RC Limitations", <u>Microdesign Resources</u> , Microprocessor Report,(1997),pp. 14-18	
		KANTA, C. , et al., "Dual Damascene: A ULSI Wiring Technology", <u>VMIC Conference</u> , (1991),pp. 144-152	
		LAKSHMINARAYANAN, S. , "Multilevel Dual Damascene Copper Interconnections", Rensselaer Polytechnic Institute, Ph.d Thesis,(1997),pp. 1-205	
		LICATA, T. , et al., "Dual Damascene Al Wiring for 256M DRAM", <u>Proceedings of the 12th International VLSI Multilevel Interconnection Conference</u> , (1995),pp. 596-602	
		LUTHER, B. , et al., "Planar Copper-Polyimide Back End of the Line Interconnections for ULSI Devices", <u>VMIC Conference</u> , (1993),pp. 15-21	
		MARCOTTE, V. C., "Review of Flip Chip Bonding", <u>Proceedings of the 2nd ASM International Electronic Materials and Processing Congress</u> , 24-28 April 1989, Philadelphia, PA, (1989),73-81	
		PFEIFFER, L. , et al., "Self-Aligned Controlled Collapse Chip Connect (SAC4)", <u>Journal of the Electrochemical Society</u> , Vol. 134, No. 11,(Nov. 1987),2940-2941	
		RYAN, J. G. , "Technology Challenges for Advanced Interconnects", <u>Advances in Metallization and Interconnect Systems for ULSI Applications</u> , September 30 - October 2, 1997, San Diego CA, (1997),1-5	
		RYAN, J. , et al., "The evolution of interconnection technology at IBM", <u>IBM J. Res. Develop.</u> , 39(4), (1995),pp. 371-381	
		SINGER, P. , "New Interconnect Materials: Chasing the Promise of Faster Chips", <u>Semiconductor International</u> , (1994),pp. 52-56	
		TAUR, Y. , et al., "CMOS scaling into the 21st century: 0.1 micrometer and beyond", <u>IBM J. Res. Develop.</u> , 39(1/2), (1995),pp. 245-260	
		VOLLMER, B. , et al., "Recent advances in the application of collimated sputtering", <u>Thin Solid Films</u> , 247, (1994),pp. 104-111	

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached